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ABSTRACT

Two sessions of a kindergarten show and tell (spaced 18 days apart) were observed to compare the participant structure and the content of this shared time. Participant structure was examined in terms of turn taking, spatial arrangement, and teacher management of the event. Content was analyzed in terms of topic and cognitive level. The changes in structure that the teacher made for show and tell from the first observation to the second observation provided a more informal setting, effectively decreasing the status differential between teacher and children. Increased participation on the part of the children resulted, as did an increase in the responsibility of the children for structuring the flow of sharing time. Most of the topics for discussion were objects from home. Children's contributions increased dramatically under the changed participation structure, while the teacher's contributions decreased correspondingly. In conclusion it was found that the changed goals and structure of sharing time raised both the quantity and the quality of the children's sharing time communication. (HOD)

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Sharing Time in Kindergarten: A Study of the Relationship between Structure and Content

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Sharing Time is a speech event found in many kindergarten and primary grade classrooms in the United States. Its typical form, especially at the kindergarten level, is that of "Show and Tell," where children bring objects to school which serve as the foci for individual children's presentation to the assembled class.

Teachers may have one or more goals in mind when they include a Sharing Time in the curriculum. For example, it may be seen as a way to provide a link between home and school and to integrate individuals into the larger group, fostering a sense of classroom community; it provides an opportunity for children to talk and learn to feel confident while doing so in front of a group; and it is often thought of as a means for furthering children's conceptual development through exposure to differing points of view or bits of information offered both by peers and teacher. Various forms for this speech event are also found, varying along the dimension of formality-informality which may govern the explicit acceptability of topics for sharing, participation rights, and spatial configurations of participants.

Because of our observations, both as teachers of young children and as "students of teaching," that teachers' goals are not always congruent with a structuring which allows their fulfillment--not only for Sharing Time--in this study we set out to examine the relationship of the structure of Sharing Time in a kindergarten to its content.

In a paper reporting a study of discourse narratives during Sharing Time in a first grade classroom, Michaels and Cook-Gumperz (1979) point out that the teacher's goals and notions of what constitutes an appropriate contribution by the child is an important factor in the structuring of that communicative event. Although the model for their analysis is the narrative while ours is that which might be more loosely termed conversation, their point still holds.

As part of a larger study Peggy Lazarus collected data over a period of four months in a kindergarten during its Sharing Time in the course of which the teacher consciously changed her ideas about what function such an event might serve in the learning of the children. A "naturalistic experiment" resulted which seemed ideal for an analysis of the sort we were interested in. As the teacher rethought her purposes for Sharing Time she restructured the event. In this paper we compare the participant structure and content of Sharing Time before the teacher changed her goals to the form and content which emerged several months later after new purposes were adopted.

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Analytic Approach

Participant structure is looked at in terms of turn taking, spatial arrangement, and teacher management of the event. As McHoul (1978) points out, all of these variables reflect the status differential between teacher and students inherent in the classroom, locating its speech events along a formality vector. This status differential also accounts for the importance of the teacher's conceptualization of any particular event.

The taking of turns during verbal interaction in a highly formal event follows a pattern which has been pre-set; McHoul (1978) provides the example of the wedding ceremony where not only who speaks when is pre-determined but also what is said is ritually prescribed. This extreme of pre-allocation of turns is mirrored physically by the spatial configuration of participants, the distances between them, and the pre-allocation of the arrangement, among other variables. Highly informal situations, on the other hand, are characterized by local, on-the-spot turn allocation and more casual, perhaps shifting, spatial relations between participants. Classroom situations fall somewhere between threse two extremes and particular speech events within the classroom may vary as to their degree of formality. Essentially, what the system of turn allocation and rules for spatial arrangement of participants in effect during a speech event regulate are the rights and responsibilities of participants with regard to speaking.

Much of teacher management of classroom activities is accomplished by both the turn allocation system and the spatial arrangement of students during various events. In addition, we look at teacher turns during Sharing Time, including evaluative remarks, which enforce and regulate the systems in operation.

We analyze content in terms of topic and cognitive level. Let us first examine the notion of topic. The importance of topic and situation in Sharing Time was recognized by Hahn (1947). She identified six most frequently used topics of middle-class first grade children: object display, home play, family activity, family outing, account of a movie, and account of an animal. She found that both topic and the situation (audience versus private recordings) affected sentence structure. Most striking was the predominance of short single sentences to accomplish object display. Hahn's typology is equally appropriate today (substituting TV for movies). This is confirmed by our impressions as classroom teachers and by examination of topics mentioned by Michaels and Cook-Gumperz (1979) and those of this study.

With the advent of discourse analysis, interest has shifted from static typology and sentence structure toward the dynamic, negotiated management of topic in interaction. In their paper "Topic as a discourse notion: a study of topic in the conversations of children and adults," Keenan and Schieffelin (1976) studied " . . . the way in which topics are initiated, sustained, and/or dropped in naturally-occurring discourse" (p. 337). They define topic as "the PROPOSITION (or set of propositions) about which the speaker is either

providing or requesting new information" (p. 338). Although their paper is concerned mainly with topic initiation, a framework for the analysis of discourse structure in terms of topic maintenance is provided and is presented below. We use this framework to analyze changes in content under varied structural conditions.

Discourse			
Continuous		Discontinuous	
Collaborating Discourse Topic	Incorporating Discourse Topic	Re-Introducing Discourse Topic	Introducing Discourse Topic

Their definitions are:

For Continuous Discourse: A topic which exactly matches that of the immediately preceding utterance is a COLLABORATING discourse topic.

Sequences in which a discourse topic integrates a claim and/or presupposition of an immediately prior utterance are topic INCORPORATING sequences.

For DISCONTINUOUS Discourse: Reintroduction of a claim and/or a discourse topic (or part thereof) that has appeared in the discourse history at some point prior to the immediately preceding utterance is called a RE-INTRODUCING TOPIC.

A discourse topic that is in no way related to the preceding utterance, and does not draw on utterances produced elsewhere in the discourse is called an INTRODUCING DISCOURSE TOPIC.

(from Keenan & Schieffelin, 1976)

For the analysis of content according to cognitive level, a hierarchical schedule is necessary. We examined several such schemes: Bank Street DCB, Tough's (1976), and Bloom's Taxonomy. All of them failed to capture some types of cognitive expression that occur in our natural discourse samples. We did find one scheme which exhaustively covers our examples, that developed by Marie M. Hughes for the Arizona Research and Development Center (1967). With her permission, The Mental Activity Hierarchy Scale (MAHS) is reproduced in the analysis section. A conversion of the results of MAHS to Bloom's Taxonomy was executed. The statistical inferences were the same for both scales.

Keenan and Schieffelin (1976) point out four difficulties the child must overcome in order to identify the proposition of the current discourse topic: limited attention span; distractibility; a lack of understanding of the point of the previous utterance (especially with declaratives where the question of concern is implicit and the child must therefore construct it for herself);

and lack of attention. Thus, collaboration upon or incorporation of the preceding discourse topic require that the child attend to the preceding utterance and possess the cognitive ability to understand it in order to respond with a relevant utterance. Specifically, an instance of collaborating discourse topic indexes attention and participation since, by definition, it mirrors the previous comment. Likewise, incorporating discourse topics index attention and participation. We use both to determine participation levels of the children. In addition, since incorporating topics add new information to the established topic, they show the ability to extend the topic. Therefore incorporating topics can serve as a measure of the cognitive level of content. Each incorporating topic can be given a score in accord with Hughes' mental activity hierarchy as an indication of the quality of the extensions and elaborations. Note that both measures are equally applicable to both teacher and child communications.

In summary, the following two measures are used to describe changes in content: Collaborating, Incorporating and Re-Introducing topics; and the Hughes Mental Activity Hierarchy Scale.

Methodology

Data Base

The raw data for this paper come from Lazarus' doctoral research, an ethnographic study of a kindergarten classroom. Assuming the role of participant observer, she moved freely among groups of children, audio-taping conversation in the naturalistic setting of the classroom. Audio-tapes were made on twenty-two days of school and were distributed as follows:

Period I		Period II		Period III		
Days	Dates	Days	Dates	Days	Dates	
*1	Nov 9	6	Jan 3	16	Mar 5	
2	Nov 27	7	Jan 4	17	Mar 7	
*3	Nov 30	8	Jan 5	18	Mar 9	
4	Dec 1	9	Jan 8	19	Mar 13	
5	Dec 4	10	Jan 9	20	Mar 14	
vacation		11	Jan 10	*21	Mar 15	(video-taped)
		12	Jan 11	22	Mar 19	
		13	Jan 12			
		14	Jan 15			
		*15	Jan 16			

*Days analyzed in this paper.

All the audio-tapes were transcribed by Lazarus. Transcriptions of four days, Days 1, 3, 15, and 21, form the basis for analysis of this paper.

Setting

The community in which the kindergarten class was located is homogeneously middle class as it consists of scientific personnel working for a government laboratory. The children have many advantages. Also, all but one of the children were native speakers of English. The kindergarten is in a public school.

Class size was twenty-one in November, twenty in January and eighteen in March. Children who have reached age five by September 1 enroll in this kindergarten.

The teacher received her master's degree from the University of New Mexico. She reported that her professional training had enhanced her belief in the open classroom and especially in the value of providing opportunities for children's use of language in the classroom. Thus, Sharing Time was an important feature of her class schedule. At the beginning of the period during which recordings were made, the teacher conceived Sharing Time to be an event very much like the usual "Show and Tell" where the children take turns presenting an object brought from home or describing an activity, typically an occurrence outside of school. The teacher, in line with her educational philosophy, stated explicitly that she viewed Sharing Time as an opportunity to increase the children's language through teacher responses that extended and elaborated upon the child's contributions.

Following the class session, the researcher often discussed the day's events as well as transcripts of previous days with the teacher to elicit her perceptions. One of these discussions revolved about alternate conceptions of Sharing Time. The researcher alerted the teacher to indications in the transcripts that children were aware of violations of certain conversational principles present in Sharing Time as then constituted. They signaled their awareness by complaints that the topic had already been shared ("You shared that before"). In this situation the teacher frequently held the floor for the sharing child by making comments or asking questions about novel aspects of the topic.

Also, the children showed some signs of inattention. The teacher felt Sharing Time was getting to be a struggle and welcomed a rationale for trying something new. She then (the next day) altered her goal for Sharing Time to promotion of children's conversational skills and participation, with a corresponding change in structure. Thus, the conditions of a natural experiment developed. We have well-documented accounts of the language produced before, during and after the changes. The research questions which we attempt to answer are: is the change in structure accompanied by an increase in children's participation, and is the change in structure accompanied by a decrease in the extension and elaboration of language which could be considered a result which is educationally counter productive?

The structural changes were spread over many days. The first and major change took place on Day 7, January 4. Day 21, March 15, documents the structure as it existed on the last day of the research. Essentially, the teacher made adjustments whenever she noted problems. In other words, this was a teacher who reflected on classroom events and continually worked for improvement. This study provides evidence of her dynamic decisions.

The following changes were made, in sequence:

1. Original structure: teacher seated in chair (which is always in the same place, child (Sharer) standing next to teacher, both facing grouped children sitting bunched on floor. Teacher selects Sharer. (Day 3)

2. Major change: teacher and children sit in circle on floor, Sharer's turn allocated automatically following circular path; children encouraged to comment and question.

3. Automatic allocation of shares; children encouraged to comment and question upon making a bid by raising hand, teacher nominates.

4. Automatic allocation of Sharer; children encouraged to comment and question, bidding by raising hands. Sharing child selects speaker.

5. Automatic allocation of Sharer; children encouraged to comment and question by fitting their contributions into conversational pauses appropriately. (Day 21)

Data Analysis and Results

Selection of Days

Two days were chosen for comparison: Day 3 as representative of the pre-change period; and Day 21 as representative of the post-change period. Day 21 was the last day of the research, and the sharing time session was both audio and video-taped. We felt that the two extreme days would indicate whether there were gross changes in the variables in which we are interested. It is possible that the video-taping and the effect of additional months of schooling could contaminate the results. Therefore certain aspects of an intermediary day, Day 15, were also analyzed where they were valuable as controls. Due to a lack of time on Day 3, Sharing Time was curtailed, denying all children with an intent to share an opportunity to participate. It is possible that peculiarities of the selected children could contaminate the results. Therefore certain aspects of Day 1 which had full participation were included as a control. The schedule on page 4 indicates that Day 1 was Nov. 9, Day 3 was Nov. 30, Day 15 was Jan. 16, and Day 21 was March 15. This means that between Day 1 and Day 3, two weeks elapsed and between Day 3 and Day 15 six weeks elapsed (but only two of them school weeks). Between Day 15 and Day 21 nine weeks elapsed.

Participant Structure

The table below shows the differences found between Sharing Times on Day 3 and Day 21 in total number of speaking turns (STs) for both children and teacher, total number of teacher speaking turn (TSTs), and total number of children's speaking turns (CSTs).

TABLE I. Number of Speaking Turns by Speaker and Day

	Day 3	Day 21
Total no. STs	103	206
Total no TSTs	55	52
Total no. CSTs	48	154
Length of Sharing Time in tape feet	175	250

Although the length of Sharing Time for Day 21 is less than one and a half times longer than that for Day 3, the total number of speaking turns is twice as many, the total number of teacher speaking turns is slightly less, and the total number of children's speaking turns is more than three times as great for Day 21 than for Day 3. In order to make sure that on Day 21 the teacher was not taking fewer turns but speaking more per turn, we compared the average number of words per teacher turn for Day 3 to that of Day 21 and found that it dropped from 12.58 to 6.71. Clearly, the children talk more under the new system than they did under the old, a positive effect if the teacher's goal is to promote student talk.

When we looked at teacher management turns we found several interesting things. On Day 3 the teacher selects the child who is to be Sharer and the discourse which ensures typically is an exchange between that child and the teacher where the teacher comments on the topic and moves the exchange along by asking the Sharer questions about it.

T: OK, Tanya.
Ta: (( )) something to say, silly.
T: You have something silly to say, hm, OK.
Ta: (( )) (Thanksgiving Day) (( ))
T: That's kind of scary. Who taught you that?
Ta: We was watching Laverne and Shirley. (a TV show)
T: Oh, Laverne and Shirley, OK.
Ch: (( )) me too.
T: OK, Stephen. (T selects next Sharer) (Day 3)

On Day 3 the teacher takes 11 turns to allocate, begin, and end Sharer turns, usually accomplishing the ending of one sharing episode and the beginning of the next in one turn as in the example above. We call these Regulatory Turns.

In contrast, on Day 21 the allocation of Sharer turns is automatic and goes around the circle from one child to the next. The teacher's regulatory comments do not really allocate turns at being Sharer, since the sequence of Sharers is pre-set. In this sense the new system is more formal than the old. However, by making selection of next Sharer automatic rather than dependent upon the teacher, equality of students in relation to each other and to the teacher is ensured. Rather, on Day 21 the teacher's Regulatory Turns serve to begin and end Sharers' turns when it appears to her that the Sharer has nothing more to say and no other children want to add anything more. She takes 18 turns to do this, usually without doing any work to wrap up the sharing episodes but simply marking the end and naming the child who is to begin next.

Sh: You know what, now we've got the whole family of dogs. #dances dogs#
Tr: Does this guy dance too? #pointing#
Sh: Yeah. #dances it#
Children: #laughter#
T: OK, Travis.
Tr: My shirt . . .

(Day 21)

Below is a table which shows the number of sharing episodes and the number of teacher Regulatory Turns for Days 3 and 21.

	Day 3	Day 21
No. of Sharing Episodes	8	21
No. T Regulatory Turns	11	18
Length of Sharing Time in tape feet	175	154

Although on Day 21 the teacher takes proportionately fewer turns to regulate the succession of sharing episodes than she does on Day 3, what was particularly striking to us was how much of the flow of Sharing Time is regulated by the teacher's questioning of the Sharer on Day 3. The example below illustrates this.

T: . . . let's let him get started, OK? What do you have, Brian?
Br: #shows a goldfish in a glass bowl#
T: Oh, look at that.
Ka: We used to have a goldfish till we gave it to the friends we had turkey with.
Br: A goldfish.
T: Can I help you hold it?
Br: It's a gold--

T: Is this the only one you have at home?
Br: No, I got four.
T: So how many did you leave at home?
Br: Three.
T: How did you decide which goldfish to bring?

(Day 3)

This exchange continues for a total of 37 turns and is one of the longest for both days. With the exception Ka's comment ("We used to have a goldfish . . ."), and that of two other (unidentified) children ("Let me look," when Brian holds up his box of fish food and "Oh, my cousin has some guppies" after the teacher mentions getting guppies for the classroom), the teacher and Brian are the only participants. This sharing episode shows the pattern of turns common to Day 3 where the average number of participants per Sharer's turn is two, including the teacher, with an occasional other child getting in a turn.

The teacher's contributions not only structure the content of the child's utterances, as Michaels and Cook-Gumperz (1979) note (see also relevant literature on types of questions and the kind of answers they elicit), but they also influence the length of the child's responses, determine the length of the sharing episode, and limit the number of participants.

Below is a table which shows the number of turns the teacher took which include at least one question (but not questions used for beginning or ending turns such as " . . . let's let him get started, OK?", or clarifying or confirming questions such as "You did?" or "Really?" Also excluded are questions the teacher asked on Day 21 inviting participation.). The excerpt above about Br's goldfish has several examples of the kind of teacher questions counted for Table II.

TABLE II. Number of Teacher Turns with Questions

	Day 3	Sharing Episode	Day 21	Sharing Episode
	8	1	1	1
	5	2	3	5
	1	5	3	7
	1	6	2	8
	3	7	3	7
	1	8	2	8
			1	11
			1	13
			2	15
			1	18
Totals	19	6	14	8

We see that for Day 3 there are a total of 19 turns over 6 sharing episodes (out of a total of 8), while on Day 21 the teacher takes 14 turns which have questions furthering the topic over 8 sharing episodes (out of a possible 21).

Whereas the teacher, on Day 21, participates much less and asks far fewer questions about the topic than she does on Day 3, leaving the structuring of the discourse to the children, we might expect to find proportionately more Regulatory Turns for Day 21. As we have seen (table on page 8), this is not the case. However, on Day 21 there are several instances where children's turns do spill over beyond the end of the sharing episode marked by the teacher.

T: Just show us one more picture for right now, OK?
Je: It's almost done (though).
Here's the (( )). That's the end of it.
T: OK.
Je: My Disneyunland I got from Daddy.
Ch: My dad give me that book.
Br: And that mon-, the monorail, it goes all the way around Disneyland.
T: Yes, OK.
Ch: And there's a train that goes all around Disneyland too.
T: Um, Sonja.

(Day 21)

Keenan and Schieffelin (1976) note that they find question-asking to be more characteristic of adults speaking to children than it is of adults speaking to other adults or of children speaking to either other children or adults. This phenomenon is probably a reflection not only of the adult's greater linguistic and communicative competence, but also of the status differential between adults and children. Cazden (lecture, 1980 LSA Summer Institute) has noted the more particular instance of this differential in the evaluative statements and asking of "known-answer" questions which are frequent in teacher-child interactions.

Further, McHoul (1978), in discussing formal talk in the classroom, points out that "Teachers have the right and obligation to give--once an answer has been produced--a comment on the sufficiency of that answer" (p. 190). The more formal the situation (such as a classroom lesson), the more marked is the instance where the teacher fails to make some kind of evaluative comment, whereas in a less formal speech event (such as Sharing Time in a kindergarten) we would expect to find that evaluative comments are less frequent. In fact, we find that when the teacher changed her goals for Sharing Time and to a new structure she makes fewer evaluative comments (Day 3 = 12 or 22% of her comments, Day 21 = 5 or 10%), which provides evidence for a conclusion that the later form of Sharing Time is less formal than its earlier form.

In looking further at the teacher's Regulatory Turns we found two other contrasts of interest. Both days have Regulatory Turns which we categorized separately from those which allocate, begin, or end children's turns, as turns which function to maintain order. These are utterances such as "Wait, wait, wait, wait, wait, wait. Wait 'til this audience is ready. Josh? Erin, are you ready?" or simply, "Shhh."[1] Again, because on Day 21 the teacher plays a less active discourse role in structuring the children's participation, we might expect to find that she has to do more work to maintain order. But this kind of management turn occurs proportionately less on Day 21 (7 instances) than it does on Day 3 (6 instances). It is possible, of course, that this difference may be accounted for by the children's increased maturity and socialization as a result of the three and a half months that have elapsed between Day 3 and Day 21.

The other difference we found is that a new category of teacher Regulatory Turns exists on Day 21, that of inviting comments. She makes such invitations as "You have anything to say about that, Adam?" and "What were you going to say, Travis?" We find no invitations to participate on Day 3, where the interactional pattern for a sharing episode is an exchange between teacher and Sharer, and the number of different participants per episode is two or three. On Day 21, however, the average number of different participants per sharing episode is six (including the teacher).

Topic Typology: Analysis

Topics presented by the children were categorized according to Hahn's (1947) typology. A few topics could not be placed among her six most common ones. They belong therefore to her miscellaneous category which accounted for 8% of her results.

Topic Typology: Results

Of the 45 topics of sharing time on Days 3, 15, and 21, 30 were objects brought from home. There was one which was a report from television, 4 reported a home activity, and none concerned an animal. Two categories not mentioned by Hahn (although perhaps included in her miscellany column) were physical state or problems (4), and parents' occupations (1).

As with Hahn's analysis, some objects were accompanied by minimal speech, but others were considerably elaborated. For example, Tanya presents her objects briefly, saying:

Ta: My picture that I made, and my boat.

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[1] N.B. the teacher's use of the term audience to describe the children other than the child whose turn it is to share. This quote is from Day 3.

whereas Brian extends his presentation of his hockey game toy with the following:

> Br: Something big I got for Christmas. If I can (( )). All these comes apart . . . (and even) this thing, I think, broke off.

The Hahn analysis provided a basis for choosing representative samples of topics on different days. These matched topics were used to gauge the cognitive level on the respective days.

Discourse Topic: Analysis

One of the measures used to examine changes in content was the topic discourse construct of Keenan and Schieffelin (1976). Whereas Hahn used 'topic' to categorize the items which children discussed during Sharing Time, Keenan and Schieffelin use 'topic' to encompass all the concepts that are related to a single item under discussion. It is therefore the Keenan and Schieffelin 'topic' that is appropriate for analyzing participation as well as extensions and elaborations of language.

In order to operationalize the Keenan and Schieffelin construct, we made the following decisions. We eliminated teacher and child management asides as not being discourse topics. Collaborating Discourse Topics (CDT's) included all responses that were part of contingency pairs (Garvey, 1975), e.g., replies to known-answer questions and repetitions. Incorporating Discourse Topics (IDT's) included replies to open-ended questions, evaluative comments, seconding comments ("me too"), as well as additional concepts. Each bit of new information within a speaking turn was counted as a separate discourse topic. This meant that there were often many topics per speaking turn.

We will now examine some instances of the scoring procedure:

Ka:	Yesterday when uh when I went to um Albuquerque, I mean Santa Fe, we stayed till midnight.	#Introducting Topic#
T:	You did?	#CDT, mirrors content of previous utterance#
Ka:	Uh huh.	#CDT, reply to contingency pair#
Ka:	Um we were we had to go to a meeting.	#IDT#
	And I was so good.	#IDT#
	I always been bad.	#IDT#
	That was the first time I been good.	#IDT#

Also, after a mask has been exhibited and the teacher asked:

T:	What could you use for hair?	#IDT, open-ended question#
Ch:	Yarn	#IDT, new idea#
T:	You could use string. What else?	#CDT + IDT#
St:	Pine needles.	#IDT, new idea#
Ch:	Green hair, well, how about blond hair?	#IDT, inference, IDT, new idea#

Lastly, in a continuation of the above cited hockey game discussion, when the hockey puck escaped across the floor, the following comments were made:

Ch:	That looks like a cookie.	#IDT, new idea#
Br:	It looks like a black hamburger.	#IDT, new idea#
Ch:	Yes.	#CDT, agrees with previous idea#
T:	What do you call that black thing, Brian?	#IDT#
Br:	A hockey puck.	#CDT, reply to known answer question#

A reliability rate between investigators of 100% on CDT and IDT designations was achieved after discussion removed the very few disagreements.

Discourse Topic: Results

The frequency and distribution of Collaborating Discourse Topics and Incorporating Discourse Topics can be read from Table III.

Insert Table III about here

We will look first at the respective contributions of children and teacher on the different days (Table III A).

On the pre-change day, Day 3, the children's contribution was 49% of the total discourse and the teacher's was 51%. After the structural change, on Days 15[1] and 21, the children's contribution reached 85% while the teacher's decreased to 15%, reciprocally. This dramatic change indicates that one goal of Sharing Time common to both conditions, that it provide an opportunity for children to talk in a group situation, was achieved.

Table III B shows the effect of the changes on the content of the discourse topics. One effect was that the proportion of IDT (new ideas) to CDT (echoing ideas) went from 49%/51% on the pre-change day to 78%/22% on Day 15, and 60%/41% on Day 21. This means that more of the total discourse was devoted to elaborations and extensions of the item being discussed. Thus another common goal of Sharing Time, extending and elaborating language, was achieved.

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[1]Day 15 was included to check that the effect was not due to videotaping on Day 21.

TABLE III. Frequency and distribution of Collaborating Discourse Topics (CDTs) and Incorporating Discourse Topics (IDTs)

A. Contributors (children and teacher) by day

Day	Number	Children	Teacher
Day 3			
CDT	59	39 (66%)	20 (34%)
IDT	57	18 (32%)	39 (68%)
Total	116	57 (49%)	59 (51%)
Day 15			
CDT	40	39 (98%)	1 (2%)
IDT	142	118 (83%)	24 (17%)
Total	182	157 (86%)	25 (14%)
Day 21			
CDT	96	88 (92%)	8 (8%)
IDT	140	112 (80%)	28 (20%)
Total	236	200 (85%)	36 (15%)

B. CDT and IDT by day

Day	Number CDT & IDT	CDT	IDT
Day 3			
Children	57	39 (68%)	18 (32%)
Teacher	59	20 (34%)	39 (66%)
Total	116	59 (51%)	57 (49%)
Day 15			
Children	157	39 (25%)	118 (75%)
Teacher	25	1 (4%)	24 (96%)
Total	182	40 (22%)	142 (78%)
Day 21			
Children	200	88 (44%)	112 (56%)
Teacher	36	8 (22%)	28 (78%)
Total	236	96 (41%)	140 (60%)

Incorporating Discourse Topics encompass all aspects of a topic that get discussed. Therefore, the contributors of IDT's determine the direction of the discussion, or as we prefer to say, the IDT contributor controls the topic. We can see the effect of the structural changes on control of the topic by examining the IDT column in Table III B. On Day 3, the teacher made 39 IDT's to the children's 18. However, after the structural change, on Day 15, the children contributed 118 IDT's to the teacher's 24. Similarly on Day 21, the children contributed 112 IDT's to the teacher's 28. The children had, therefore, achieved control of the topic.

Another way of illustrating the results of our discourse analysis is by flow diagrams for particular topics. We have prepared several of these. Representative topics (according to Hahn's categories) were matched for Day 3 and Day 21. Geometric symbols are used to identify Discourse Topics:

- △ Introducing Discourse Topic
- ▱ Reintroducing Discourse Topic
- ○ Collaborating Discourse Topic
- □ Incorporating Discourse Topic
- ◇ Evaluative Comment

Each CDT is placed adjacent to its generative topic, producing a horizontal extension. Each IDT is placed on the next lower line, also one space to the right, thus producing a diagonal progression. Teacher's contributions are signified by 'T' in the geometric symbol. Children's contributions are signified by the first two letters of their names in the geometric symbol. Roman numerals on the flow diagrams correspond to MAHS rank. One can follow the discourse flow down the page noting whether the teacher (T) or the child (Aa..Zz) contributes to the topic and what the nature of the contribution is.

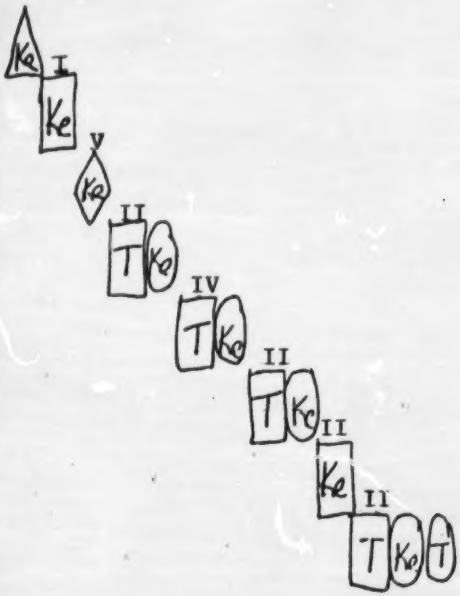
Insert Figure I about here

It is apparent from this diagram that it is the teacher, on Day 3, who is controlling the topic, is contributing most of the IDT's, whereas on Day 21 the children control the topic, and moreover, several different children participate. Several flow diagrams as well as the transcripts on which they are based, are included in the appendix.

Figure I

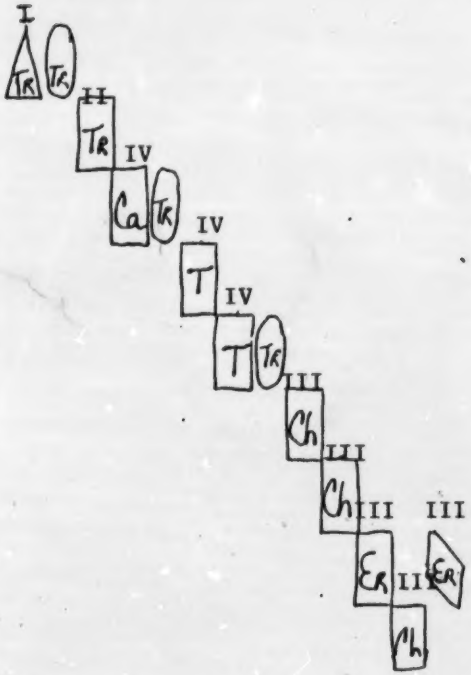
Distribution of Discourse Topics:
Frequencies and Patterns

DAY 3
TOPIC 3



DAY 21
TOPIC 18

APPAREL



Cognitive Level of Content: Analysis

We have determined that the number and proportion of language extensions and elaborations increased with the change in structure in Sharing Time. Also, the children were the ones responsible for the extensions and elaborations in the post-change condition. One question remains: were these changes accomplished at the expense of the cognitive level of the discourse?

To estimate the cognitive level in the pre and post conditions, we used the Marie M. Hughes Mental Activity Hierarchy Scale (MAHS) which is given below.

Insert Hughes Scale about here

With this scale, each part of every utterance can be given a rank of I . . . VI. However, we are concerned only with language extensions and elaborations. Since CDT's do not perform this function, whereas IDT's do exactly that, only IDT's need to be scored. Here is an example of our scoring.

Day 21: Topic 19: Object: brief

	T:	OK I don't have anything to share. So I'll -- Tanya, what do you have to share?
II	Ta:	My picture that I made. And my boat.
V	T:	#hold it up#. Pretty nice, isn't it? You want to tell us anything about this? Anybody have anything to say?
II	Ca:	Guess what, Tanya, I, Keith made one. And he stuck it in the
II,IV,IV		water table. But he had to throw it away and make a new one.
IV	Br:	Yeah, because the part you put the sail on was too long.
V	Ca:	Right.
V	Br:	And it made it fall over into the water, huh Candida?
V	Ca:	Uh huh.

An interrater reliability of 93% for assigning ranks on the MAHS resulted when scores of the two investigators and Dr. Hughes, originator of the instrument, were compared.

We wanted to compare the cognitive level or the pre-change condition to that of the post-change condition, Day 3 to Day 21. Day 3, however, had a Sharing Time period which was cut short for lack of time. To control for this problem, we executed two types of matching. Using Hahn's categories of topics, we matched representative topics for the two days. Specifically, examples of each of the following types were compared across days: an item of wearing apparel (object), an object presented with brief communication, an object presented with elaborated discussion, and a home activity. (Transcripts for matched topics are included in the appendix with MAHS rankings in the left margin.) A mean rank for both the children's and the teacher's

A TENTATIVE HIERARCHY OF MENTAL ACTIVITY FOR HEURISTIC PURPOSES ONLY

by

Marie M. Hughes, Director

Arizona Research and Development Center
Early Childhood Education Laboratory
Cooperative Research Project
1967

LEVEL I	Sensing:	Obtaining information through the senses
	Perceiving:	Being selectively aware
	Discriminating:	Detecting, distinguishing by certain features a characteristic recognition.
LEVEL II	Remembering:	Having a motion or idea come into the mind which implies an earlier experience; random or passive memory.
	Retrieving:	Deliberate recovering or regaining by remembering, recalling
	Identifying:	Labeling, recognition by discrimination
LEVEL III	Comparing and Contrasting:	Examining objects and situations in terms of their characteristics, their likeness and differences.
	Grouping:	Classifying, categorizing
	Exploring:	Deliberate wondering about, searching into, questioning.
LEVIL IV	Organizing:	Arranging or systematizing the interdependent parts of a whole -- placing of events in some identifiable relationship
	Imagining:	Responding to properties of an object or event not present to the senses.
	Planning:	Arranging events in some order and relationship to one another.
	Inferring:	Assigning meaning beyond the data or observation available. Placing discrete facts and observations in some relationship from which added meaning may be gained.

	Analyzing:	Breaking situations, objects and ideas into their multiple facets, perceiving multiple relationships.
	Formulating and Generalizing:	Stating principles, laws, relationships that derive from a class of events.
LEVEL V	Evaluating and Judging:	Rating by some identifiable criteria. May be personal value or bias -- the criteria used are known or acknowledged by the individual.
	Abstracting:	Lifting out one or more qualities or factors to achieve a higher classification; that is, grouping or categorizing to include a larger number of specifics.
	Hypothesizing and Predicting:	Accepting a proposition with conditional factors. If then -- given this predict that.
LEVEL VI	Inventing-Composing:	Bring together elements, factors, objects in some new form or use -- combining.
	Synthesizing-Conceptualizing:	Which brings elements, ideas, generalizations together that have not been brought together before -- usually under a new rubric or construct.
	Creating:	Expressing creativity at the highest level of generating new ideas, assumptions, etc., changing the area, materials, methods, in which one is working.

IDT's on each matched topic was determined. Secondly, we analyzed the IDT's of all contributions on Day 1 which had a Sharing Time of unrestricted length. A mean rank of matched children (those who spoke on Day 1 and Day 21, and those who spoke on Day 3 and Day 21) was computed.

Cognitive Level of Content: Results

There were nine sets of scores based on the frequency per rank on MAHS for the children's IDT's. For each set a mean rank was determined. We do not consider this measure to be a description of cognitive level, since cognitive level in no way assumes an interval scale. We do consider this measure to be a description of frequency and distribution of ranks for entire populations, the IDT's of Days 1, 3, and 21. The mean rank results are displayed in Table IV.

Insert Table IV about here

Even cursory examination of the values of the means suggests very little change from the pre- to post-condition. Statistically, only one difference of means, that of all children on matched topics, reaches a level of significance. We conclude, therefore, that the means are drawn from the same population.

The teacher's mean ranks vary even less than the children's, leading us to conclude that there was also no change in teacher mean rank under the changed structure.

Other tests were performed which do not violate the strictures against arithmetic manipulations of ordinal data. The McNemar test for the significance of changes (Siegel, 1956) and a chi-squared test were also applied. The McNemar test was applicable to the sets of scores for children on Days 1 or 3 against their own scores on Day 21. The results of this test indicated there was no significant change.

The chi-squared test was applied to changes in frequencies per rank between Days 1 and 3, and Day 21. All observations were pooled to provide the most conservative estimate of expected frequencies. The comparisons, except that of rank 3, were insignificant. Otherwise, the observed frequencies conformed to the expected frequencies. The increase in rank 3 above the expected frequency may reflect a trend of the children's IDT's to move from rank 2 to rank 3. However, the chi-squared test results lead us to the conclusion that there was no decrease in cognitive level as a consequence of the change in structure.

TABLE IV. Mean Rank ($\bar{R}$)
on
Mental Activity Hierarchy Scale (MAHS)
of
Incorporating Discourse Topics (IDT)

IDT	Day 1			Day 3			Day 21		
	N	$\bar{R}$	($\bar{R}$-ev)*	N	$\bar{R}$	($\bar{R}$-ev)*	N	$\bar{R}$	($\bar{R}$-ev)*
Children									
All children	80	3.2	(3.1)	28	2.8	(2.5)	146	3.1	(2.9)
Matched children	27	3.6	(3.5)				99	3.4	(3.2)
On all topics				19	2.9	(2.7)	54	3.4	(3.2)
All children on matched topics				19	2.7	(2.6)	45	3.6	(3.4)
Teacher									
All IDT's On all topics	76	3.5	(3.0)	37	3.6	(3.1)	22	3.6	(2.9)
On matched topics only				35	3.7	(3.2)	9	3.7	(3.0)

*($\bar{R}$-ev) is the mean rank when Level V, Evaluation, is omitted.

Means and standard deviations for groups	
Children	Teacher
$\bar{X}_{means}$ = 3.12	$\bar{X}_{means}$ = 3.65
σ_{means} = .31	σ_{means} = .05

Discussion and Conclusions

Participant Structure

The changes in structure that the teacher made for Sharing Time from Day 3 to Day 21 produced a more informal setting, effectively decreasing the status differential between teacher and children. Increased participation on the part of the children resulted, as did perhaps an increase in responsibility of the children for structuring the flow of Sharing Time. The teacher's role on Day 3 might be characterized as Director, whereas on Day 21 it is much more like something which we can call Moderator.

Topic Typology

The topics children chose to discuss in this 1978 kindergarten were consistent with patterns described by Hahn in 1947. Also consistent with Hahn's description is the finding that often the object discussions were extremely brief.

Discourse Topics

The discourse topic framework allowed us to show that children's contributions, both as Collaborative Discourse Topics and Incorporating Discourse Topics, increased dramatically under the changed participation structure, while the teacher's contributions decreased correspondingly. Moreover, the higher proportion of children's Incorporating Discourse Topics after the change indicates that they achieved control of the flow of discourse. The rise in Collaborating Discourse Topics indicates high attention to the topic under discussion.

Cognitive Level

The cognitive level scores were developed to answer the question of whether there was a loss from the teacher's abandonment of the goal of extending and elaborating the children's language. Our results indicate that, on the contrary, there was an increase in the number of extensions and elaborations with no loss of cognitive level under the changed conditions.

Summary

In examining the relationship between content and structure of a kindergarten Sharing Time which was altered when the teacher consciously changed her ideas about what function such an event might serve in the learning of the children, we found that the changed goals and structure of Sharing Time raised both the quantity and quality of the children's Sharing Time communication.

Teachers differ in their goals for Sharing Time and are often interested in changing its structure to enable them to better realize their goals. The method of analysis used in this study can be applied to any variety of Sharing

Time. Its tools will allow teachers to determine whether a particular structure is congruent with their goals.

We consider the study of incorporating discourse topics to be a promising subject for further research and suggest that the method of displaying discourse flow might be useful to other researchers.

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APPENDIX

Day 3: Topic 3: Apparel

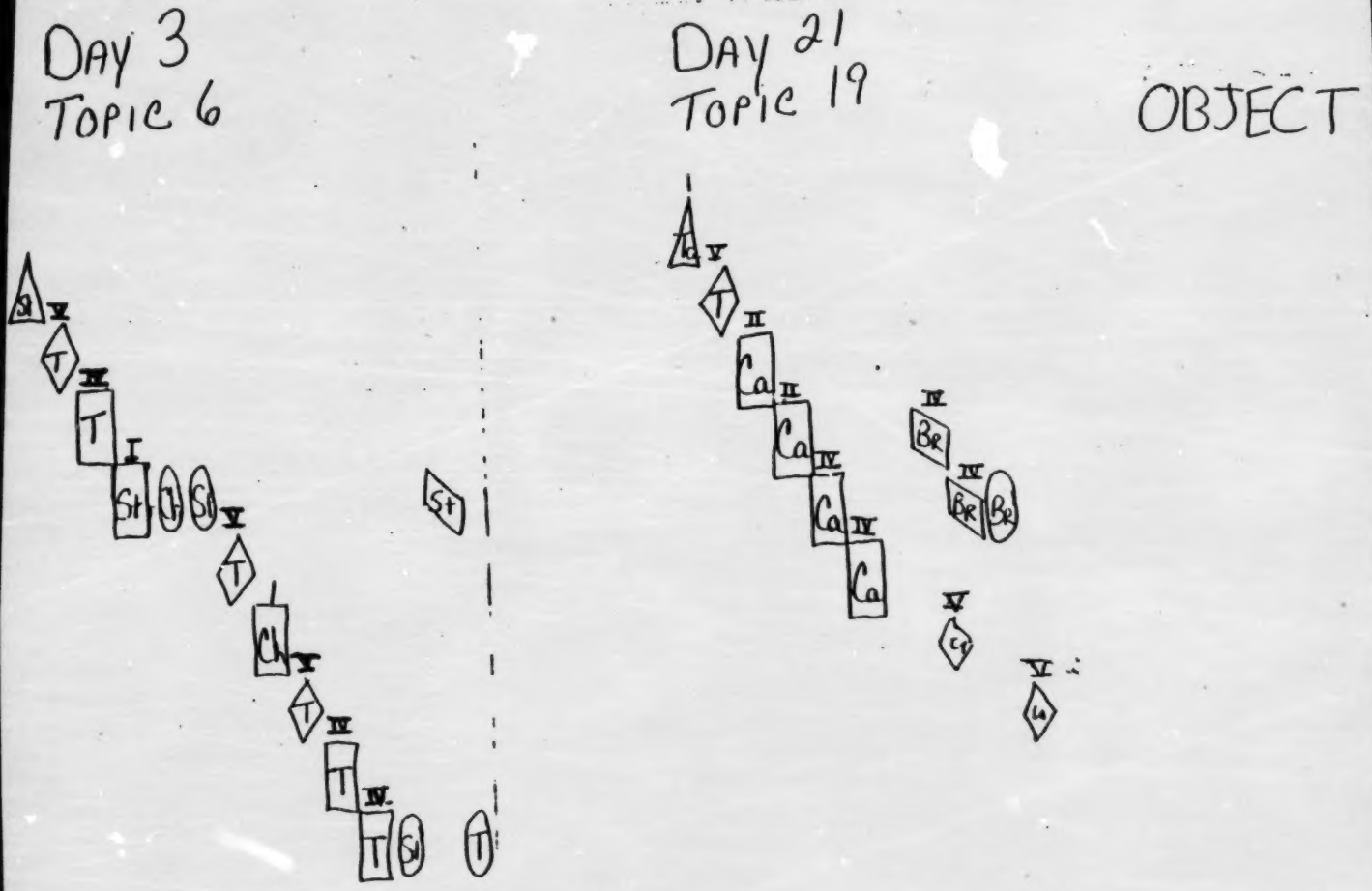
MAHS codings		
I	Ke	I didn't see the cat. Oh. It
V		looks neat-oh.
II	T	Oh is that the cat that died.
	Ke	No.
IV	T	That's a pretty famous cat isn't it. It's on all the commercials.
	Ke	Yep.
II	T	Do you have a cat at home?
II	Ke	Mm but he's black.
II	T	Does he have a name.
	Ke	Spook. (( ))
	T	Spook.

Day 21: Topic 18: Apparel

MAHS codings		
	T	OK, Travis.
II	Tr	My shirt. Battlestar Gallactica. There's
I		a small one right there. (( ))
IV	Ca	And Travis ripped one off because it was getting old.
	Tr	(It was for a gun.)
II	Ch	Where was it?
	Ch	It was right there.
IV	T	Sometimes those transfers come off, don't they?
IV		You have to be careful how you wash that shirt don't you?
	Tr	Uh huh.
III	Ch	My mom has one about Elvis Presley and I got one about Star Wars.
III	Er	My brother has one about Star Wars. And one about Sta-Battle-star Gallactica.
III	Ch	My mom and dad and my big sister and my brother have one about Frere Jacques.
III	Ch	My brother has Battlestar Gallactica and Star Wars.

Figure II

Distribution of Discourse Topics:
Frequencies and Patterns



numerals stand for MAHS codings

Day 3: Topic 6: Object (brief)

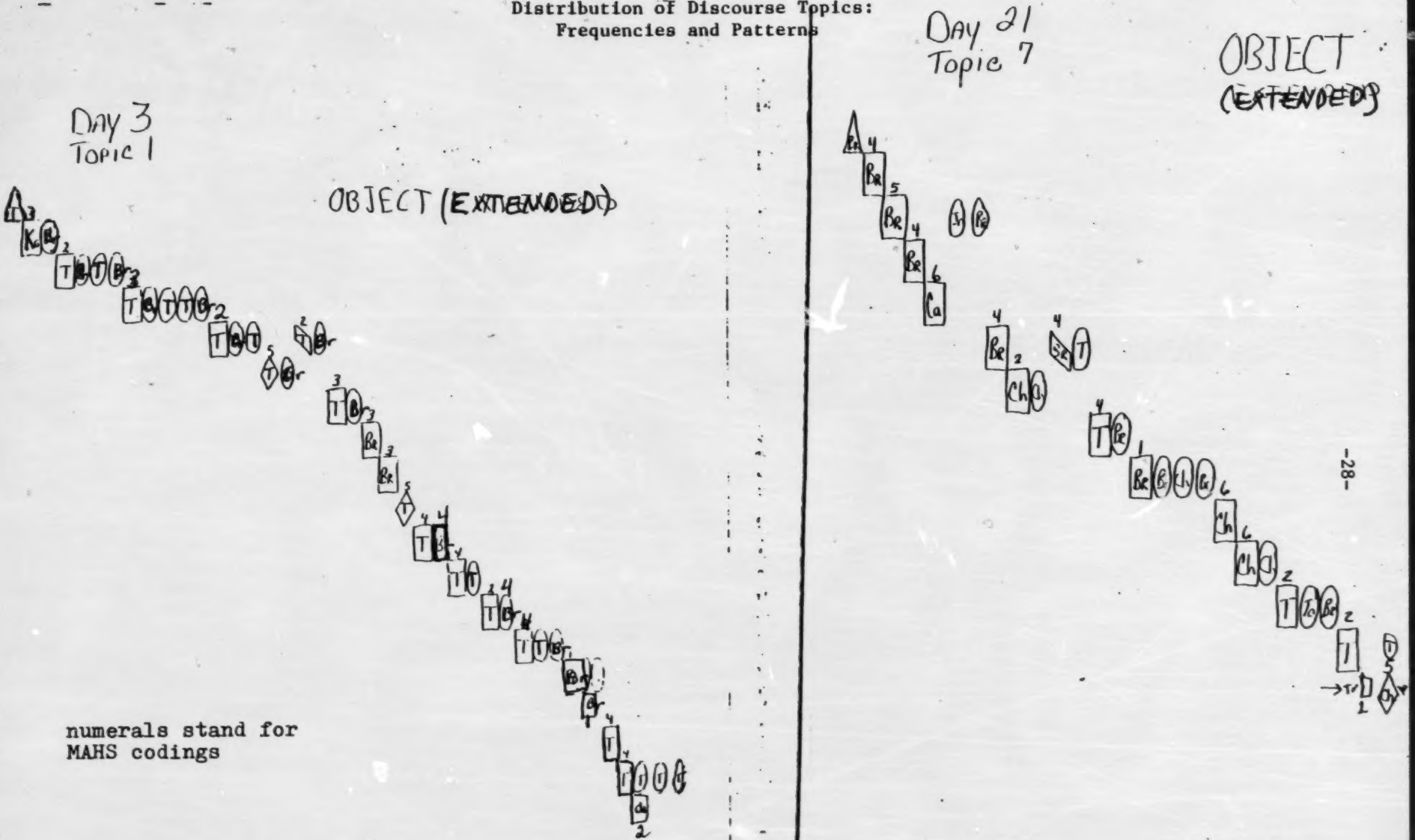
MAHS codings		
	T	OK, Stephen.
	St	My turtle. #shows patchwork handsewn object#
V	T	Isn't that a good looking turtle.
IV		It looks like it was--
I	St	It has orange, pink, yellow, purple green pink and orange yellow red blue orange.
	Ch	Purple. I see some purple, red
	St	And purple down here.
V	T	Isn't that terrific
I	Ch	And black. And white.
V	T	Well you really know your colors don't you.
IV		Stephen, that looks kinda like a homemade stuffed animal.
II		Did somebody make that for you?
	St	I don't know (( )) And a purple tail
	T	You just don't remember. OK, Jennifer.

Day 21: Topic 19: Object (brief)

MAHS codings		
	T	OK, I don't have anything to share. So I'll (( )). Tanya, what do you have to share?
II	Ta	My picture that I made. And my boat.
V	T	#holds it up# Pretty nice, isn't it? You want to tell us anything about this? Anybody have anything to say?
II	Ca	Guess what, Tanya, I, Keith made one.
II, IV		And he stuck it in the water table. But
IV		he had to throw it away and make a new one.
IV	Br	Yeah, because the part you put the sail on was too long.
V	Ca	Right.
V	Br	And it made it fall over into the water, huh Candida?
V	Ca	Uh huh.

Figure III

Distribution of Discourse Topics: Frequencies and Patterns



numerals stand for MAHS codings

Day 3: Topic 1: Object (extended)

MAHS codings		
	T	Since Brian has been out absent such a long time and since he brought something really special to share, let's let him get started, OK? What do you have, Brian.
	Br	#Brian shows goldfish in glass bowl#
	T	Oh, look at that.
III	Ka	We used to have a goldfish till we gave it to the friends we had turkey with.
	Br	A goldfish.
	T	Can I help you hold it?
	Br	It's a gold
II	T	Is this the only one you have at home.
	Br	No, I got four.
	T	So how many did you leave at home.
	Br	Three.
III	T	How did you decide which goldfish to bring?
	Br	Well, my mom told me to bring one that had a little eye and a big eye.
	T	Little and big eye? Does this one have a little and a big eye?
	Br	No, they're both the same size.
II	T	Oh. Does this one have a name?
	Br	Catfish.
V	T	Catfish, catfish goldfish. That's pretty neat. Why do you suppose--
II	Br	do some of your goldfish at home have one big eye and one little eye? I named him catfish. No, not all of them, just one.
II	T	I wonder why that happens.
II	Br	I don't know. But they're both black.
III		All of their eyes are black.
V	T	I see. Well Brian, I think catfish is a pretty neat fellow.
IV		Your mom is pretty brave to let you bring him in a paper bag.
	Br	I know.
IV	T	You know that paper bag is getting a little wet, some of the water
II		must have splashed out. Do you suppose you--what kind of fish food do you feed them?
	Br	I got this kind at home and another kind.
IV	T	Let's see what it says, 'Long Life' flake fish for goldfish. Got vitamins and minerals just like the food you eat...52 percent protein.
IV, I	Br	I know. What to see how it looks inside?
	T	Uh huh.
I	Br	Want to eat some?
	T	(Careful.)
	Ch	#laughter#
		Let me look, Brian. What are these here?
	T	Tell you what Br, why don't we put this stuff on the table and have people look at it as they can, OK.
IV, V		Um, you know what I think would be nice to have in the classroom are some guppies.
II	Ch	Oh my cousin has some guppies.

MAHS codings

IV T If you know anybody who would be willing to share some guppies with us at the end of the year, we could return them when school's out. OK?
Go put Catfish in a comfortable spot. Maybe you'd like to put him by the amaryllis.

Day 21: Topic 7: Object (extended)

MAHS codings

T OK, Brian.
IV, V Br Something big I got for Christmas. If I can (( ))
IV All these comes apart.
III Ca You've got a bunch of things.
Br (( ))
IV Jo Looks like it fell apart again.
IV Br Yeah. (An even) this thing, I think broke off.
IV It did.
II, IV [Ch Ohhh, Cooper Jack. I know what it is.
[Br Yup, it sure did.
IV T Broken? Do you think you can put it back together.
I Br Maybe.
T Well why don't you work on it right there and we'll go on, and come back to you, OK?
Sh What's that (r)obot?
Be You press his head and it works.
I Br (( )) where is that thing? Um where is that black thing?
Ch Here
Br Thanks
VI Be? That looks like a cookie
VI Br It looks like a black hamburger.
Ch yes #laughter#
II T What do you call that black thing, Brian?
Jo A hockey puck.
Br (( )) call it a hockey puck.
II T What kind of a, what sport is that person playing?
II Br Boomerang hockey.
T Hockey
V Ch That's right. (( ))
Sh Was funny, little thing that (( ))
IV Jo How about you make the net?
Ch (( )) took my ten-
Ch? I (getting) the (( )) It's broken.
T OK, OK, Rebecca.

Day 3: Topic 7: Home Activity

Je My blue picture. I'm doing what the calendar said.
T You're doing the calendar set?
Je Um hum. Remember that calendar that you gave us? I'm doing what it said.
T Oh yes, and you brought your blue picture?
Je Um hum.
T Hey, you're terrific, you know that! Let's see what this says. It's a skier isn't it? You know what it says, Jennifer?

Je No, I don't know how to read it.
T OK, it says, What would it feel like to be on top of a mountain? where all you could see is snow and sky? Would you like to climb a mountain?
Je Yeah, we've climbed a mountain before.
T Have you? It says, What would you think about at the top?
Je I would think about snow. We're going to go tubing in our backyard, um, someday. We're gonna um--go tubing in our backyard. Someday.
T That is terrific. Jennifer, I am so proud of you for remembering to do that job calendar at home. You know what, that means you are a very responsible kid.
Je And um see, if we did it, we cross it out so it won't, we don't do it again.
T Right, you must have finished the whole month today because today is the last day of November.
Ch Guess what?
Well, I've got to finish mine.
I gotta finish mine too.

Day 21: Topic 1: Home Activity

T I'm . This is the kindergarten at School. We would like to show you how we do sharing. Kathy, go ahead.
K Yesterday, when uh when I went to um Albuquerque, I mean Santa Fe, we stayed till midnight.
T You did?
K Uh huh.
T What were you doing there all that time?
K Um, we were we, had to go to a meeting. And I was so good. I always been bad, that was the first time I been good.
T That's a pretty nice (( ))
Be Did they have a lot--Did the meeting have a lot of people?
K A very lot.
C Kathy, my mom goes to P-PWA meeting and boy does it take long. Ahhh it takes over half an hour to forty-five minutes, to a hundred minutes.
J: When my mom goes to a meeting, then um, she stays until it's over and tha--
B It isn't PWA, it's TWA.
C P. She, she used to be an Avon lady. That's why it's PWA (( ))
B That kinda sounds like TWAirlines.
T Uh huh, OK.
B TWA